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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/815,559	03/31/2004	James Loran Ball	ALTRP129/A1389	7127
51501	7590	04/18/2006	EXAMINER	
BEYER WEAVER & THOMAS, LLP ATTN: ALTERA P.O. BOX 70250 OAKLAND, CA 94612-0250			SCHLIE, PAUL W	
			ART UNIT	PAPER NUMBER
			2186	

DATE MAILED: 04/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/815,559	<b>Applicant(s)</b> BALL, JAMES LORAN	
	<b>Examiner</b> Paul W. Schlie	<b>Art Unit</b> 2186	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 31 March 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☒ Claim(s) 25 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>1</u> .   | 6) <input type="checkbox"/> Other: _____                                    |

### DETAILED ACTION

1. Claims 1-30 have been examined.

#### *Drawings*

2. The drawings are objected to under 37 CFR 1.83(a) because they fail to show a representative depiction of the disclosed software instruction based cache line invalidate implementation vs. a more conventional hardware based implementation, denoting in particular the differences associated with the bypass circuitry requirement as eluded to in the specification; as any structural detail that is essential for a proper understanding of the disclosed invention or required by that claimed should be shown in the drawing, however no new matter not fully supported by the original disclosure may be added, MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheets should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are

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not accepted, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification/Claim Objections***

3. The disclosure is objected to as within page 1 line 11, "an" is improperly spelled as "and". Appropriate correction is required.
4. Claim 25 is objected to within the text of the claim on page 24 line 8, "line" is improperly as "lien". Appropriate correction is required.

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1-30 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. As elements critical or essential to the practice of the invention are neither included in the claims nor enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976).

More specifically, as no representative instruction and cache implementation detailing the how a reset may initiate an instruction sequence which may itself invalidate

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a sequence of cache lines in lieu of an alternative hardware based mechanism is disclosed to reasonably enable one of ordinary skill in the art without likely undue experimentation to implement said claims; the disclosure is not considered enabled.

Corrective action is required, however the applicant is reminded that no new matter may be added which is not supported by the original disclosure.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1, 13, 24, and 28 rejected under 35 U.S.C. 102(b) as being anticipated by Paysan ("A Four Stack Processor" April 2000).

As per independent claims 1, 13, 24, and 28, Paysan teaches a processor architecture comprising: a plurality of registers, instruction processing logic, and instruction and data cache; where upon receipt of a reset signal or exception, said processor will fetch and evaluate a determined sequence of instructions from a predetermined address regardless, thereby effectively treating the cache line otherwise associated with said predetermined address as being invalid, and utilize said instruction sequence to bootstrap the re-initialization of the processor's and cache's state, inclusive of the invalidation of each of the processor's respective cache's lines and thereby their respective tags (see page 11 "Cache Control.", page 20 "Reset" in Exception table, page 21 fourth paragraph beginning with "Exceptions ...", and figure 1).

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 2-12, 14-23, 25-27, and 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paysan ("A Four Stack Processor" April 2000):

As per claims 2-12, 14-23, 25-27, and 29-30, being dependant on claims 1, 13, 28, or correspondingly dependent claim inclusively; claims (2, 5 and 7-9) are considered inherent in that taught as reviewed above, as are claims (3-4, and 6) in view that it's well understood by those of ordinary skill in the art at that invalidating a cache line implies invalidating the tag associated with its correspondingly cached data (or instruction); as commercially available programmable logic devices were well understood as being capable of embodying a processor and/or multi-master buses utilizing various correspondingly well understood topologies and multiplexing and/or arbitration techniques to interconnect processing, storage, and/or I/O elements, per claims (10-12) it is considered obvious to one of ordinary skill in the art to combine (i.e. embody within a programmable logic device) that taught by Paysan relevant to the claims with a multi-master bus architecture, for the benefit of enabling a such a processor architecture to be prototyped and efficiently interface with other processing, storage, and/or I/O elements as may be desired. Thereby as claims (14-23, 25-27 and 29-30) are

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considered be encompassed by claims (2-12) in other form, they are correspondingly rejected based upon the same arguments as presented above.

**Conclusion**

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul W. Schlie whose telephone number is 571-272-6765. The examiner can normally be reached on Mon-Thu 8:00-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Kim can be reached on 517-272-4182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
PIERRE BATAILLE  
PRIMARY EXAMINER  
4/15/06